U.S. Coral Reef Monitoring Project Survey

Part 1. Project Summary

Survey administered by: ASCH
Project ID:
Date Administered (dd-mo-yy): 27-Aug.-99

Project title: Detection of Coral Bleaching and Hurricane Damage on Coral Reefs in St. John, US Virgin Islands: A Comparison of Results from the Çhain Transect Method and Videography.

Principal investigators

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Keywords (provide several keywords that describe project data):

ST. JOHN
CHAIN TRANSECT METHOD
VIDEOGRAPHY
CORAL BLEACHING
HURRICANE DAMAGE

Project Summary:

The linear chain transect and videography were used to quantify the percent cover by corals, macroalgae, gorgonians, other living organisms, and substrate along ten 10m permanent transects on two fringing reefs off St. John. Both methods were used simultaneously on a reef in Newfound Bay in March and October 1998, following Hurricane Georges (September 1998), and during a severe coral bleaching episode which began in September. Although hurricane damage was conspicuous, neither method showed significant changes in coral cover or other categories as a result of the storm. In March, mean coral cover was 26.0% (SD=6.0) with the chain method, and 25.9% (SD=7.7) with the video. In October, corresponding values were 25.1% (SD=5.0) and 24.1% (SD=5.8). At Lameshur, where both methods were used simultaneously in November 1998, mean coral cover was 10.2% (SD=5.5) with the chain method and 10.7% (SD=4.8) with the video. At both sites, the most dramatic difference was in the quantification of bleaching. At Newfound, the chain method indicated 13.4% (SD=14.1) of the coral tissues were bleached and the video method, 43.4% (SD=13.0). Corresponding values at Lameshur were 18.1% (SD=22.3) and 46.5% (SD=13.3).

Spatial Coverage of Database

Spatial Coverage (briefly describe geographic extent of project):

Both reefs surveyed in this project are located on St. John. The Newfound Bay reef is situated on the northeast coast, while the Lameshur reef is on the southern coast.

Geographic Extent (Bounding rectangle in decimal degrees);
North_____West_____South_____East_____

Are data aggregated into geographic units: [ ] yes [ ] no
Are data available in disaggregated form: [ ] yes [ ] no

How was spatial accuracy determined:
[ ] NOAA Nautical Chart [ ] USGS Quad [ ] Loran [ ] County Road Map
[ ] Survey [ ] GPS [ ] Other:

Temporal Characteristics of Database

Temporal characteristics (brief narrative):

The Newfound Bay reef was sampled on March 1998 and October 1998. On the second date, the Lameshur reef was also sampled in November 1998.

Period of Record:
Begin (d/mo/yr): March 1998 End (d/mo/yr): November 1998

Sampling is: [x] Ongoing [ ] Planned [ ] Historic

Frequency of Sampling:
[ ] Hourly [ ] Daily [ ]Weekly [ ] Monthly [ ] Annually [x] Other: See the brief narrative of temporal characteristics.

Sampling Interval:
[ ] Fixed [x] Intermittent

How is sampling recorded?
[ ] Automated [x] Non-automated

Data Parameters:

Specific Constituents/Parameters Sampled (include units):

WATER TEMPERATURE
PERCENT CORAL COVER FOR HARD CORALS, SOFT CORALS, SPONGES ZOANTHIDS AND 3 ALGAL COMPONENTS
PERCENT CORAL BLEACHING

Methodology:

Provide a short description about how monitoring data is gathered/acquired:

Two different methods were used which included underwater videography and a chain transect method.

On what basis were sites selected?

Both sites have a record of long term data.

How are samples processed, stored, and archived in the field?

Data from the chain transect method was recorded on an underwater slate, while the video tapes were taken with a Sony DVX-1000 digital video camera.

How are samples processed, stored, and archived in the laboratory?

For the data acquired through the chain transect method, QuattroPro spreadsheets were created to process, store, and archive the data. Image Pro, Microsoft Excel software, and Point Count were used to process and store the video images of the transect.

What methods were used for sample analysis and quality assurance?

[x**] Data quality analysis**

Videography provides a permanent visual record, which can be double-checked by different observers to guarantee quality assurance.

[ ] Chemical analysis

Describe any assumptions in assembling/acquiring monitoring data:

Describe the primary limitations with monitoring data:

It can be hard to differentiate among various hard bottom substrates and also between macroalgae and algal turf in the video. Likewise, some of the points surveyed using Point Count did not have sufficient resolution for investigators to identify species. Using this technique, it is also difficult to know whether pale or mottled coral truly represents coral bleaching.

Database Characteristics:

Format:

[x] Digital [ ] Map
[x] Hardcopy (reports, data sheets, tables) [ ]Other_____

Status (check one):

[x] Database Available/Being Distributed [ ] Portions of Database Available
[ ] Data Not Available [ ]Other_____

Predominant Data Type:

[x] Numeric [ ] Qualitative

How is data stored (hardware & software):

QuattroPro spreadsheets and Microsoft Excel

Data Structure:

[ ] Discrete Points (sampling site) [x] Line/transect (e.g., shoreline, beach)
[ ] Polygon (watershed)

Data Completeness (check one):

[ ] Data clean [x] Data need minor work [ ] Data need major work [ ] Other: The data is not yet available.

Data Maintenance (check one):
[ ] No maintenance [x] Intermittent maintenance [ ]Periodic maintenance (fixed intervals)
[ ] Continuous maintenance [ ] Other:

Are the following elements in this database available for each sampling location (check all that apply)?

[x] Station Location (lat/long coordinates of site or areal unit)
[x] Frequency of Sampling (by station location)
[x] Constituents/Parameters Sampled (by station location)
[x] Period of Record

Use and Users:

How is data used?

[x] Research

[x] Monitoring

[ ] Planning

[ ] Management

[ ] Regulatory

Users (identify specific institutions):

[x] Federal Government: DOI

[ ] State Government

[ ] Local Government

[ ] Regional Entities

[x] Academic:

Data Availability:

On-line (describe how to access, i.e., bbs, Telnet, world wide web):

Not avaailable.

Off-line: (describe how to access):

Contact Caroline Rogers.

Are costs associated with requests? [ ] yes [x] no
If yes, please explain:

Access constraints (describe briefly any constraints for accessing data set):

Use constraints (describe briefly any constraints for using data set):